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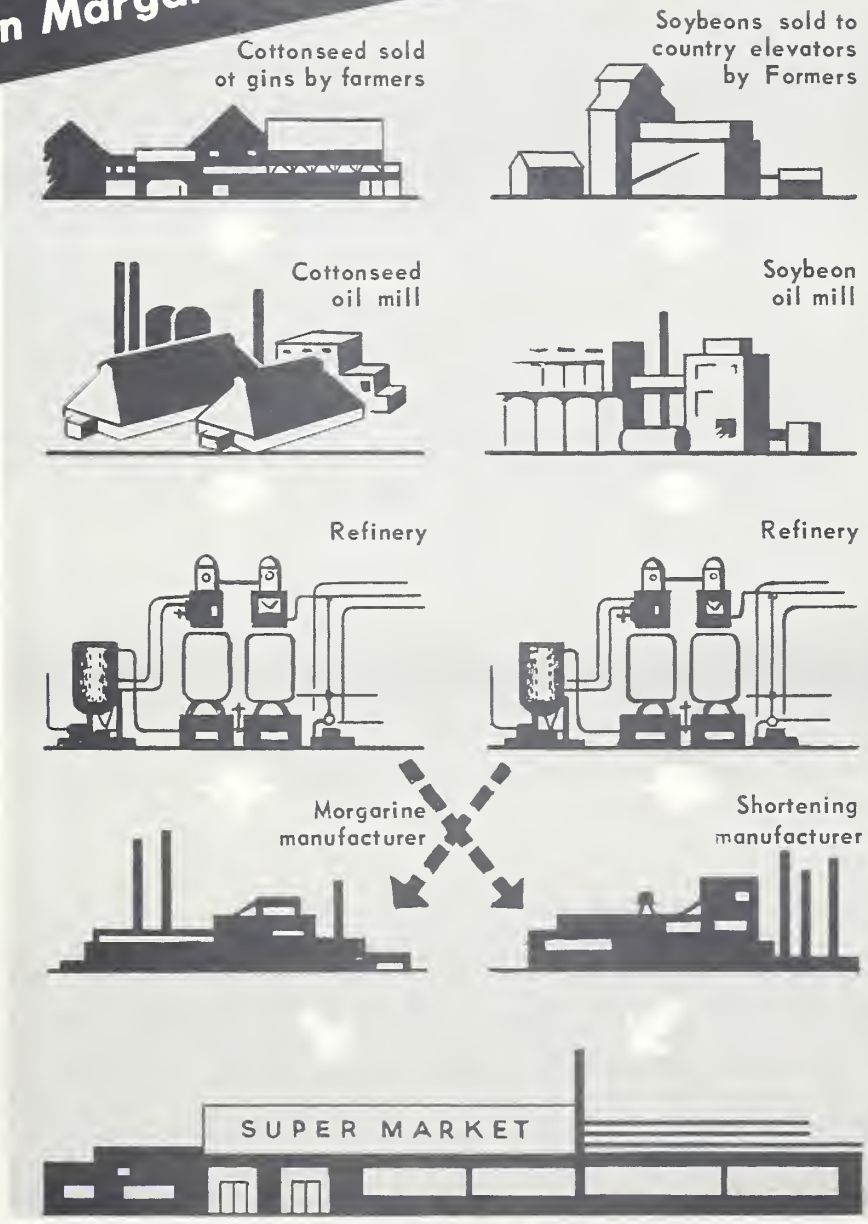
MARKETING MARGINS FOR SOYBEAN and COTTONSEED OILS

Used in Margarine and Shortening



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MARKETING MARGINS FOR SOYBEAN AND COTTONSEED OILS USED IN MARGARINE AND SHORTENING 1/

The study reported here concerns the marketing charges for a pound of soybean or cottonseed oil from the time the raw materials leave the farm until the oil reaches the consumer in the form of margarine or shortening.

The oil that is extracted from soybeans and cottonseed sold by American farmers is used mainly in margarine and shortening consumed in American households. The marketing channel between farm and dining room may be long and along its course charges continually accumulate.

The Marketing Channels and Services

A major part of the soybean crop and nearly all of the cottonseed crop are sold by the farmers soon after harvest. Some soybeans are stored on farms but more commonly the farmer sells and delivers them to a "country elevator." At the elevator they are loaded on rail cars, either immediately or after a period of storage. Cottonseed seldom appears on the farm as a separate commodity. It originates at the cotton gin where it is separated from the cotton fiber.

From elevator or cotton gin, the oilseeds are transported (in one step or more) to the oil mill where they are processed. Along the channel they may be stored for a time. The crude oil produced is shipped, stored, refined, bleached, hydrogenated, and deodorized. In making margarine the oils are mixed and several additives are incorporated, then the whole is blended, and further processed in various minor ways. The finished product is packaged, shipped, stored, delivered to retailers, stored again, advertised, displayed, and sold to final consumers. Shortening passes through a parallel but simpler procedure.

At many points in the marketing process, various other activities add to the marketing margin. These include the management function and clerical work, market analysis, financing, insuring, diverting, trading, exercising judgment, taking responsibility, and executing orders.

Procedures for Computing Margins

The method used here for measuring the marketing charges against soybean oil and cottonseed oil is to compare the value attributable to the oil embodied in margarine and shortening at each of the successive steps in the marketing process. The differences found represent the charges made, step by step. The value of 100 pounds of refined soybean oil in the form of vegetable shortening consumed in New York City in November 1954 was calculated at $35.14 (table 21). This value is compared with the value of 100 pounds of refined oil in soybeans as sold by the farmer which was $10.84 The marketing margin or difference between these two values ($24.30) is the sum of the charges for marketing soybean oil from the farm to the retail level. In this study such charges have been measured for oil derived from soybeans and cottonseed of specified origins (table 22) and consumed in New York, Chicago, Atlanta, and Los Angeles.

1/ This is a preliminary report prepared by Virginia Farnworth, Donald Jackson, and Calvin C. Spilsbury, Agricultural Economists, Agr. Market. Serv.

Table 21.- Value and farmer's share attributable to 100 pounds of refined soybean and cottonseed oil incorporated in products at the principal steps in the marketing channel for selected cities, November 1945 and November 1954 1/

Form of commodity	Soybean				Cottonseed			
	November 1945		November 1954		November 1945		November 1954	
	Value	Farmer's share	Value	Farmer's share	Value	Farmer's share	Value	Farmer's share
	Dollars	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
New York								
Soybeans	11.45	100.0	10.84	100.0	---	---	---	---
Cottonseed	---	---	---	---	9.84	100.0	8.67	100.0
Crude oil	12.25	93.5	12.87	84.2	13.39	73.5	12.98	66.8
Refined oil	13.13	87.2	14.63	74.1	14.31	68.8	14.90	58.2
Hydrogenated oil	14.35	79.8	16.65	65.1	15.42	63.8	17.42	49.8
Margarine:								
Retail	28.02	40.9	2/34.46	31.4	28.12	35.0	34.60	25.1
Shortening:								
Retail	24.87	46.0	35.14	30.8	24.87	39.6	35.14	24.7
Chicago								
Soybeans	11.85	100.0	11.58	100.0	---	---	---	---
Cottonseed	---	---	---	---	10.13	100.0	10.31	100.0
Crude oil	12.22	97.0	12.64	91.6	13.52	74.9	13.27	77.7
Refined oil	12.77	92.8	13.96	82.9	14.24	71.1	14.60	70.6
Hydrogenated oil	13.99	84.7	15.98	72.5	15.35	66.0	17.12	60.3
Margarine:								
Retail	28.96	40.9	2/32.87	35.2	29.08	34.8	33.06	31.2
Shortening:								
Retail	25.63	46.2	35.64	32.5	25.63	39.5	35.64	28.9
Atlanta								
Soybeans	11.83	100.0	11.55	100.0	---	---	---	---
Cottonseed	---	---	---	---	10.06	100.0	8.60	100.0
Crude oil	12.20	97.0	12.61	91.6	13.52	74.4	13.27	64.8
Refined oil	13.07	90.5	14.55	79.4	13.98	72.0	13.91	61.9
Hydrogenated oil	14.29	82.8	16.57	69.7	15.09	66.7	16.43	52.4
Margarine:								
Retail	29.21	40.5	2/28.44	40.6	29.28	34.4	28.44	30.2
Shortening:								
Retail	24.52	48.2	35.04	33.0	24.52	41.0	35.04	24.6
Los Angeles								
Soybeans	11.68	100.0	10.71	100.0	---	---	---	---
Cottonseed	---	---	---	---	9.47	100.0	9.39	100.0
Crude oil	12.23	95.5	12.52	85.6	14.04	67.5	13.88	67.7
Refined oil	13.49	86.6	15.55	68.9	14.51	65.3	14.60	64.3
Hydrogenated oil	14.71	79.4	17.57	70.0	15.62	60.7	17.12	54.9
Margarine:								
Retail	29.62	39.4	2/32.97	32.5	29.64	32.0	32.93	28.5
Shortening:								
Retail	24.22	48.2	34.33	31.2	24.22	39.1	34.33	27.4

1/ No adjustments have been made for the effect of Federal and State taxes on oleomargarine, or Government subsidies to processors, existing in 1945. The effect of taxes would be to reduce the farmer's percentage share while subsidies paid to processors on soybeans would tend to increase the farmer's share.

2/ Colored oleomargarine.

Table 22.- Sources of soybeans and cottonseed for oil consumed in four selected cities

City	Soybeans	Cottonseed
New York City ...	Crop Rept. Dist. #1 Ohio	Crop Rept. Dist. #1 Tex.
Atlanta	Crop Rept. Dist. 4a Ill.	Crop Rept. Dist. 5 Ga.
Chicago	Crop Rept. Dist. 4a Ill.	Crop Rept. Dist. 4 Miss.
Los Angeles	Crop Rept. Dist. 5 Iowa	Crop Rept. Dist. 5a Calif.

Prices of soybeans and cottonseed used in this report are those reported by the Federal Crop Reporting Board to have been received by farmers in the chosen districts. These district averages have been used because of possible erratic differences among prices in individual sales.

At each major step in each marketing channel the value of 100 pounds of refined oil has been calculated, beginning with an oil share in the price farmers received for soybeans and cottonseed and ending with an oil share in the retail price of margarine and shortening in one of the four cities.

Margins Widen

In table 21 these prices, and imputed values, are shown for both soybean and cottonseed oil for both November 1945 and November 1954. Parallel to these dollar-and-cents prices is shown the farmer's share as a percentage of the total value of the oil at each step in the marketing channel. The two types of data require joint study.

The principal story told by the two series is that marketing margins for both oils in all four cities widened greatly from 1945 to 1954. Furthermore, the increase in margin, or rise in price, became relatively greater as the oil progressed through the marketing channel (table 23). The value of 100 pounds of oil in the farmer's soybeans actually decreased by more than 4 percent between November 1945 and November 1954, the oil in cottonseed by more than 6 percent.

Table 23.- Changes in value attributable to a pound of soybean or cottonseed oil in the marketing channel, averages for four consuming centers, November 1945 to November 1954

Form of commodity	Soybean	Cottonseed
	Percent	Percent
Soybeans	- 4.6	
Cottonseed		- 6.4
Crude oil	+ 3.6	- 2.0
Refined oil	+11.8	+ 1.7
Hydrogenated oil	+16.4	+10.8
Margarine retail	+11.3	+11.2
Shortening retail ...	+41.2	+41.2

Both the level of prices at each step in the marketing channel and the changes in prices between November 1945 and 1954 reflect a high degree of substitutability of the two oils in margarine and shortening. There was less than 1 percent difference between the values of the two in these consumer products. This is not true for all uses of the oils. In their crude state, as first extracted, the value of cottonseed oil averaged around 11 percent more than soybean oil in 1945 and 5 percent more in 1954.

Each of the oilseeds is affected by its own set of influences. To begin with, the areas of production and centers of processing are not the same for the two. Furthermore, cottonseed is a byproduct of cotton fiber, and its production is almost independent of the demand for cottonseed products and, consequently, the production of oil is influenced little by demand. As a consequence, the producers of cottonseed frequently are in a relatively weak market position. Partly as a result of this, the value of a pound of oil in cottonseed was about 16 percent less than in soybeans in 1945 and 17 percent less in 1954.

Regional Differences in Margins

Some clear differences in the marketing margin appear between cities. The farmer's share of the value of oil in margarine in November 1945 was slightly higher in New York City than in the other three consuming centers. The value of oil in margarine rose 23 percent in New York City between November 1945 and November 1954, while it fell 3 percent in Atlanta.

Nine-year increase in oil values at major points in the marketing channel, November 1945 to November 1954, are shown by consuming centers in table 24.

Marketing margins on soybean oil and cottonseed oil are shown separately, principally because the two oilseeds are mostly produced by different farmers -- and mostly in separate regions. Today, however, relatively little margarine or shortening is produced wholly from either of the two oils. These products usually include both oils. The proportions used depend on regional custom, price, freight costs, and technical plant processes and skills (table 25).

Table 24.- Increases in values of soybean and cottonseed oil at major points in the marketing channel by consuming center, November 1945 to November 1954

Form of commodity	New York		Atlanta	
	Increase in -		Increase in -	
	Soybean	Cottonseed	Soybean	Cottonseed
	Percent	Percent	Percent	Percent
Soybeans	- 5.3		- 2.4	
Cottonseed		-11.9		-14.5
Crude oil	+ 5.1	- 3.1	+ 3.4	- 1.8
Refined oil	+11.4	+ 4.1	+11.3	- .5
Hydrogenated oil	+16.0	+13.0	+16.0	+ 8.9
Margarine:				
Retail	+23.0	+23.0	- 2.6	- 2.9
Shortening:				
Retail	+41.3	+41.3	+42.9	+42.9

	Chicago		Los Angeles	
	Increase in -		Increase in -	
	Soybean	Cottonseed	Soybean	Cottonseed
Soybeans	- 2.3		- 8.3	
Cottonseed		+ 1.8		- .8
Crude oil	+ 3.4	- 1.8	+ 2.4	- 1.1
Refined oil	+ 9.3	+ 2.5	+15.3	+ .6
Hydrogenated oil	+14.2	+11.5	+19.4	+ 9.6
Margarine:				
Retail	+13.5	+13.7	+11.3	+11.1
Shortening:				
Retail	+39.1	+39.1	+41.7	+41.7

Table 25.- Proportions of the oil in margine and shortening that is assumed to be soybean and cottonseed

Consuming center	Margarine		Shortening	
	Soybean	Cottonseed	Soybean	Cottonseed
	Percent	Percent	Percent	Percent
New York City	65	35	75	25
Atlanta	35	65	35	65
Chicago	65	35	75	25
Los Angeles	35	65	35	65

Thus, the part of the consumer's dollar paid for oil in margarine and shortening (table 26) lies between the figures shown for the two oils separately (table 21).

Table 26.- Farmer's share of consumer's dollar paid for oil incorporated in margarine and shortening

Consuming center	Margarine		Shortening	
	1945	1954	1945	1954
	Percent	Percent	Percent	Percent
New York City	38.8	29.2	44.4	29.3
Atlanta	36.5	33.9	43.6	27.5
Chicago	38.8	33.8	44.6	31.6
Los Angeles	34.6	29.9	42.3	28.7

These data show the portion of the consumer's payment for oil in margarine and shortening that was received by the farm producer of the major physical ingredient -- the oil.

Minor ingredients in margarine, in addition to the oil, represent by weight nearly 20 percent of the margarine; in value they normally represent around 5 percent.

Rise in Oil Yield Affects Farmer's Share

Another body of supplementary information needed to develop a full understanding of the value to be attributed to the oil contained in the farmer's soybeans or cottonseed relates to the physical yield of oil by these oilseeds, the yield and price behavior of other oilseed products that are produced jointly with oil, and the degree to which, and the terms on which, various oils are substitutable for each other. One important point is the fact that the oil yield per bushel of soybeans increased roughly 25 percent during the 9-year period studied, due partly to improved strains of soybeans but largely to improved processing methods both at the oil mill and the refinery. Cottonseed oil yield also increased.

According to the figures shown in table 23, the farmer's return per pound for soybean oil decreased 4.6 percent. Due to the increase in yield, however, the farmer received 19 percent more for the oil recovered from a bushel of soybeans in November 1954 than he did in November 1945.

Further study of the whole marketing process for soybeans and cottonseed and their products is required to give a fully adequate explanation of the margins involved. Additional data are needed for important intermediate points, especially wholesale prices for margarine and shortening, in order to indicate where and for what service, marketing charges are added.